SPRING BARLEY

Varieties and Culture

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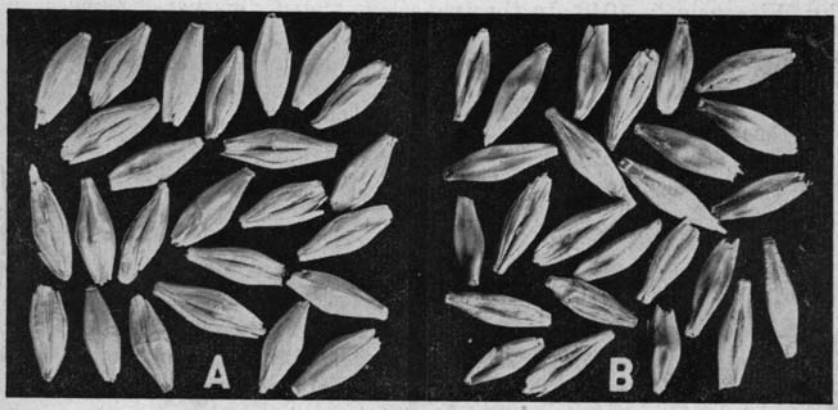
SPRING BARLEY is adapted to the northern half of Illinois. A crop of high-quality for malting will return more income per acre than either oats or spring wheat. Barley also fits well into crop rotations. It is generally superior to rye, oats, and wheat as a nurse crop for small-seeded legumes because it matures earlier and so needs less water, nutrients, and sunlight.

Malting barley commands a premium. Both malting barley and feed barley can be grown in Illinois. Malting barley of good quality usually brings 25 cents a bushel more than common feed barley.

Two things are necessary in order to obtain the premium paid for malting barley: (1) select a variety acceptable to the malting industry; (2) produce a crop of high quality. Wisconsin Barbless, or 38, and Oderbrucker are the two varieties most extensively grown in Illinois and preferred by the maltsters.



White disease-free barley — Blighted (scabby) barley

(Photograph by B. Koehler)

UNIVERSITY OF ILLINOIS · AGRICULTURAL EXPERIMENT STATION
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To produce a high-quality crop requires great care in harvesting and threshing. Do not harvest until the straw is completely yellow and the kernels are hard. Before combining or threshing, be sure moisture of grain is down to 14 percent. Adjust speed of cylinders and set of concaves to prevent cracking and skinning of the kernels. Federal standards specify that the amount of skinned and broken kernels in malting barley shall not exceed 5 percent.

Varieties. **Wisconsin Barbless** is the highest yielding malting variety in both central and northern Illinois five-year tests (Tables 1 and 2). It also has stiffer straw than the rough-awned **Oderbrucker** and is resistant to the stripe disease. Wisconsin Barbless is comparatively late maturing but seems to withstand early summer heat well.

Three new malting varieties showing promise in tests of recent years are Montcalm, Bay, and Moore.

Montcalm is a medium-maturing Canadian variety having smooth awns and blue kernels. In the three years tested it has out-yielded Wisconsin Barbless in both northern and central Illinois. Montcalm, however, is slightly taller and weaker-strawed than either Oderbrucker or Wisconsin Barbless. In malting tests it compares favorably with other varieties, but some maltsters object to the blue kernels.

Bay was released by Michigan in 1946. Under Illinois growing conditions it has the stiffest straw of any malting variety tested. It has shown high yield, early maturity, and high test weight (weight per volume) in the three years it has been tested.

Moore is a promising white-seeded, smooth-awned variety released by Wisconsin in 1948. In the two years tested, this variety has been outstanding in yield and in resistance to lodging. It also carries resistance to mildew, stem rust, and spot blotch. In yield, it has shown a greater response to fertilizers than any other variety.

Two other varieties, **Kindred** (or "L") and **O.A.C. 21**, are not so promising as those just described. Their yields are comparatively low and their straw is too weak under Illinois conditions.

Cultural practices. Cleaning the seed and treating it with new improved Ceresan or some other disinfectant to control seedling blight are profitable practices. Barley yields best when it is sown early on a well-prepared, fertile, loam type of soil. It will then grow rapidly and reach maturity in the cool, favorable part of the growing season.

Barley seed should be sown with a drill at the rate of about 8 pecks an acre. Early seeding is of such importance, however, that in a late wet spring broadcasting is recommended. About 10 pecks of seed to the acre are needed when seed is broadcast.

Fertilizer recommendations. Low yields of barley are due to lack of nitrogen in the soil more than to any other one factor. On land

Table 1.—NORTHERN ILLINOIS: Performance of Spring Barley Varieties[a]

Rank	Variety	Above (+) or below (−) average of all varieties	Yield per acre		Test weight per bushel	Plants erect at harvest	Height of plants
			All years	1948			
Grown 5 years, 1944-1948		*bu.*	*bu.*	*bu.*	*lb.*	*perct.*	*inches*
1[b]	Velvon	+4.5	49.3	54.8	41.9	91	31
2	Wisconsin Barbless	+2.1	46.9	50.3	43.9	83	36
3	Wisconsin H-35-7-2-1-3	− .6	44.2	48.3	44.5	88	36
3	Wisconsin 5 (Oderbrucker)	− .6	44.2	42.1	44.6	75	38
5	Oderbrucker (Bachert)	−3.8	41.0	41.2	44.9	75	38
	Difference necessary for significance	.....	**3.4**	**5.1**	....	..	..
Grown 4 years, 1945-1948							
1	Wisconsin Barbless	+3.7	49.4	50.3	44.7	81	37
2[b]	Galore	+2.3	48.0	58.0	42.4	82	34
3	Kindred, or "L"	−4.3	41.4	40.3	44.9	52	36
	Difference necessary for significance	.....	**4.2**	**5.1**	....	..	..
Grown 3 years, 1946-1948							
1	Montcalm	+6.7	52.1	55.9	45.4	67	39
2	Wisconsin Barbless	+1.7	47.1	50.3	44.2	76	38
3	Bay	+ .1	45.5	43.4	44.0	80	39
4	Oderbrucker 2	−1.5	43.9	43.9	44.2	59	39
5	O.A.C. 21	−4.6	40.8	43.5	43.9	54	41
	Difference necessary for significance	.....	**4.9**	**5.1**	....	..	..
Grown 2 years, 1947 and 1948							
1	Wisconsin X-212-1	+4.2	48.8	52.9	45.0	72	43
2	Moore	+3.2	47.8	50.4	45.4	78	39
3	Wisconsin Barbless	+2.4	47.0	50.3	45.0	75	40
4	Wisconsin 12B-52	−2.7	41.9	48.5	46.4	79	41
	Difference necessary for significance	.....	**4.0**	**5.1**	....	..	..

[a] The test field was at Mt. Morris in 1944 and 1945, at Woodstock in 1946-1948.
[b] Velvon and Galore are not acceptable for malting.

where not enough nitrogen is supplied by legumes or manure, nitrogen fertilizer will be beneficial. Ammonium nitrate or its equivalent broadcast at the rate of 75 to 150 pounds an acre just before or after seeding is recommended.

On soils that are low in phosphorus or potassium, barley will respond to applications of these nutrients if nitrogen is not a limiting factor. Phosphorus can be supplied in the form of rock phosphate, superphosphate, or mixed fertilizers. Potassium can be supplied in muriate of potash or in mixed fertilizers. Drilling with the seed at seeding time 150 to 200 pounds of 3-12-12, 0-12-12, or their equivalents, will take care of the needs of the immediate crop for phosphorus and potassium.

Hazards of barley production. In Illinois there is a likelihood that scab will attack the crop. When it attacks early, it stops the development of the grain and injures the germ end of the kernel,

Table 2. — CENTRAL ILLINOIS (Urbana): Performance of Spring Barley Varieties

Rank	Variety	Above (+) or below (−) average of all entries	Yield per acre		Test weight per bushel	Plants erect at harvest	Height of plants	Date headed	Straw per acre
			All years	1948					
Grown 5 years, 1944-1948		*bu.*	*bu.*	*bu.*	*lb.*	*perct.*	*inches*		*tons*
1	Wisconsin Barbless...	− .5	41.3	49.7	43.1	63	38	6-13	1.29
2	Wisconsin 5 (Oderbrucker).....	− .7	41.1	42.0	44.6	55	41	6-11	1.21
3	Wisconsin H35-7-2-1-3	−1.4	40.4	41.9	44.3	75	37	6-11	1.22
4	Oderbrucker (Bachert)	−2.0	39.8	40.1	44.3	52	41	6-11	1.21
	Difference necessary for significance....	.....	**2.2**	**4.2**	....	..	..	....	....
Grown 4 years, 1945-1948									
1[a]	Galore.....	+4.8	51.2	47.0	41.6	58	36	6-11	1.29
2	Wisconsin Barbless...	+ .5	46.9	49.7	43.8	55	40	6-14	1.37
	Difference necessary for significance....	.....	**2.6**	**4.2**	....	..	..	....	....
Grown 3 years, 1946-1948									
1	Bay.....	+2.8	48.1	49.3	44.6	81	39	6-16	1.30
2	Montcalm.....	+2.5	47.8	44.3	42.9	41	40	6-14	1.20
3	Wisconsin Barbless...	+1.9	47.2	49.7	44.1	57	37	6-17	1.29
4	Oderbrucker 2.....	−2.3	43.0	40.0	43.6	45	38	6-15	1.17
5	Kindred, or "L".....	−2.8	42.5	37.2	44.4	39	36	6-11	.96
	Difference necessary for significance....	.....	**2.4**	**4.2**	....	..	..	....	....
Grown 2 years, 1947 and 1948									
1	Moore.....	+3.9	47.6	49.9	42.8	68	34	6-22	1.22
2	Wisconsin Barbless...	+2.0	45.7	49.7	43.2	54	34	6-22	1.28
3	Wisconsin X-212-1...	−1.3	42.4	41.2	45.0	46	38	6-20	1.04
4	Wisconsin 12B-52....	−1.8	41.9	44.7	45.8	50	38	6-22	1.11
5	O.A.C. 21.....	−3.2	40.5	39.5	43.0	45	37	6-17	1.04
	Difference necessary for significance....	.....	**3.1**	**4.2**	....	..	..	....	....

[a] Galore is not acceptable for malting.

thereby reducing germination. When more than 4 percent of the kernels of a lot of barley are damaged or materially discolored by blight, the barley is not suitable for malting and is labeled "blighted" when it gets on the market. Neither hogs nor horses will eat scabby barley.

This disease is caused by a fungus (*Gibberella saubinetti*) which is prevalent in other small grains and in corn. This hazard can be reduced by placing barley in a rotation following a non-cereal crop. When barley is to be planted on corn land, great care should be taken to completely cover all cornstalks and other refuse when plowing.

Two other hazards to growing barley in Illinois are chinch bugs and hot dry weather. These hazards are less likely to occur in northern Illinois than in the central part of the state.

(Experiment Station and Extension circulars are numbered consecutively in the same series.)

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